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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/728,929 | 12/08/2003 | Kia Silverbrook | ZG112US | 9666 |
| 24011 | 7590 | 06/28/2005 | EXAMINER | |
| SILVERBROOK RESEARCH PTY LTD 393 DARLING STREET BALMAIN, 2041 AUSTRALIA | | | MITCHELL, JAMES M | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2813 | |

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------|------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/728,929 | SILVERBROOK, KIA | |
| | Examiner | Art Unit | |
| | James M. Mitchell | 2813 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 5-20 is/are rejected.
- 7) ☒ Claim(s) 2 and 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. 10/129,502.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12/12/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is in response to application filed December 8, 2005.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. There is no antecedent basis in the written description for "a portion of a substrate, which is not been etched."

Furthermore claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the substrate in relation to wafer caps/ cap layer.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a substrate separating the grooves/ recesses must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

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prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 3 and 5-17 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 19 of copending Application No. 10/728,800 in view of Fujii (U.S. 6,429,506).

Application 10/728,800 claims:

(cl.1) a method of applying a plurality of caps to a plurality of micro-fabricated devices at the wafer stage, the method including: forming a plurality of hollow molded caps; as an array, from a layer of thermoplastic material which is placed in a mold, the mold having first and second mold halves which are brought together to form the caps, each cap having a central portion and a perimeter wall; retaining the array in one of the mold halves, and applying caps to one side of a wafer (CLM 1 of App.'800), wherein the coefficient of thermal expansion of the mold half retaining the array is compatible with the coefficient of thermal expansion of the wafer (CLM 2 of App '800);

(cl. 3, 5) the wafer is separated into individual packages by a deep plasma etch of the wafer (CLM of 4 of App. '800);

(cl. 6, 7) wherein, applying the separated caps further comprises using a release wafer having pins which pass through holes in a mold half (CLM 5, 6, 10 of App '800);

(cl. 8) wherein, there is a gap between the first mold half and the release wafer, and using the release wafer further comprises applying a vacuum to the gap (CLM 7 of App '800);

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(cl. 9, 20) the caps are formed from a layer of thermoplastic material, and further comprising the step of etching caps under an oxygen plasma etch process (CLM 8 of App '800)¹;

(cl. 10) forming the caps comprises heating the layer with infrared radiation while it is in the mold (CLM 8 of App '800);

(cl.11) the first and second mold halves each have eject holes for receiving eject pins, which are formed on adjacent release wafers.

(cl. 12, 17) wherein, the thermoplastic material is 200-500 microns thick prior to being formed into caps (CLM 11 of App '800) and absorbs infrared;

(cl. 13) a thin layer joining adjacent caps during molding is removed a squeezing action of the mold (CLM 12 of App '800);

(cl, 14) a thin layer joining the caps after molding is of the material from which the caps are formed, and the thin layer is removed by an oxygen plasma etch (CLM 8, 13 of App '800);

(cl. 15) the thin layer is removed by a squeezing together of portions of the mold halves, which have unetched top surfaces (CLM 8, 14 of App '800);

(cl. 18) the first mold half has a lower surface into which is formed a series of recesses defined by lateral edges, the second mold half having an upper surface in which is formed a series of grooves, the grooves aligning with the edges to define mold cavities, the recesses-and grooves having a repeat spacing that corresponds to a spacing on a wafer to which the caps will be applied (CLM 16, 14 of App '800);

¹ The wafer is etched by a different process, thus the caps are unaffected by wafer etching.

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Application '800 does not expressly claim that the caps are simultaneously applied to one side of a wafer and overlying or part of device with a free edge of a perimeter wall, or that chips that are substantially completely packaged prior to being separated.

Fujii (Fig. 1A-E) discloses applying caps (5) to one side of a wafer (4) simultaneously and overlying or part of device with a free edge of a perimeter wall (1E) with chips substantially completely packaged (i.e. caps on chips; Fig. 1E) prior to being separated (Fig. 2A).

It would have been obvious to one of ordinary skill in the art to form the caps simultaneous in order to simultaneously protect multiple devices as taught by Fujii (Fig. 1E) thereby decreasing manufacturing time to produce individual chips packages. This is a provisional obviousness-type double patenting rejection.

Allowable Subject Matter

Claims 2 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art does not disclose or make obvious forming caps on both on the top and bottom surfaces of a wafer using mold having same coefficient of thermal expansion as the wafer in the process of making microfabricated devices at the wafer stage including all the limitation of the independent claim with molds.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jmm
June 24, 2005


CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
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